REMARKS

In the Final Office Action, the Examiner rejected claim 12 under 35 USC 112 and claims 1-10, 12-13, and 15 -26 under 35 USC 103. The rejections are fully traversed below.

Claims 8, 10, 12, 15-21 and 23 have been amended. Claims 8 and 10 have been amended to include the limitations from independent claim 1 and intervening claims 7 and 9, respectively. Claims 12 and 15-21 have been amended to correct their dependency. Claim 23 has been amended to include the limitations from dependent claim 25. Claims 14 and 25 have been cancelled. Thus, claims 1-10, 12-13, 15-24 and 26 are pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

REQUEST FOR WITHDRAWAL OF FINALITY OF OUTSTANDING OFFICE ACTION

The finality in the above referenced office action is believed to be premature and therefore reconsideration is respectfully requested. The finality is believed to be premature since the amendment to claim 1 did not necessitate a new ground(s) of rejection. Claim 1 was amended to include the limitations from dependent claim 11 as well as to add a limitation covering the limitations of dependent claims 7 and 9. No new material was added to claim 1. Claim 11 was rejected in the first Office Action via a 102 rejection including Walko and clams 7, 9 and 11 were rejected via 103 rejections including Lenz and Deguchi. Both of these rejection were removed in the subsequent Office Action. Claim 1, which now includes the limitations from these claims, was rejected in the second Office Action via 103 rejections that included combination of Imafuku and Aruga. Neither Imafuku nor Aruga had been used to reject these limitations in the previous Office Action. Accordingly, the finality of the outstanding Office Action should be withdrawn.

ISSUES UNDER 35 USC 112(2)

Claim 12 has been rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is believed that the rejection is overcome by the amendment made above, i.e., the dependency of claim 12 has been changed so that it depends from claim 1.

ISSUES UNDER 35 USC 103(a)

Claims 1, 4-10 and 16-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Imafuku* et al. (6,074,518) in view of *Aruga* et al (5,456,757).

In contrast to *Imafuku* and *Aruga*, claim 1 specifically requires, "...a second confining element...including an exposed insulating surface, which is configured to at least partially cover a non exposed conductive core that is electrically grounded..." and claim 23 specifically requires, "...the second confining element including an insulating portion that is exposed within the process chamber, and a conductive portion that is covered by the insulating portion so as to keep the conductive portion from being exposed inside the process chamber, the conductive member being electrically grounded..."

While *Imafuku* may disclose a ground electrode 27 and an insulating or conductive gas diffusion discharge guide 47, *Imafuku* does not teach of suggest a discharge guide with a non exposed conductive core or a guide that is electrically grounded. With regards to the first issue, *Imafuku* only states that the guide may be conductive. No mention is made to covering the conductive guide. That is, *Imafuku* is completely silent to "...including an exposed insulating surface, which is configured to at least partially cover a non exposed conductive core..." as required by claim 1. *Aruga* does not overcome the deficiencies of *Imafuku*. While *Aruga* may disclose a susceptor plate 11 and a metallic electrode plate 13 affixed to the back surface of the susceptor plate 11, *Aruga* does not teach or suggest a confining element. An electrode plate is simply not a confining element. Electrodes are used to form plasmas not to minimize the formations of plasmas. The most that can be said is that *Aruga* teaches that the electrode of *Imafuku* can include a susceptor thereon. This, however, does not read on the claimed limitation. Accordingly, the rejection is unsupported by the art and should be withdrawn.

With regards to the second issue, *Imafuku* states that the conductive guide can be grounded. This, however, is unlikely in the configuration of Fig. 11 of which the Examiner relied for the rejection. As shown in Fig. 11, there is no way for the guide to be grounded do to the fact that it is sitting on an RF hot surface, i.e., if the guide was conductive it would act as part

of the electrode. In the present invention, an insulating member is positioned between the conductive core and the electrode and thus the conductive core can be grounded. *Imafuku* is completely silent to such a feature. *Aruga* does not overcome the deficiencies of *Imafuku* for at least the same reasons as above (e.g., no confining element). Furthermore, in *Aruga*, the electrode is not grounded but rather connected to a high frequency power source 52. Thus, *Aruga* teaches away from a non exposed conductive core that is grounded. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Imafuku* and *Aruga*, claim 23 specifically requires, "...wherein the first confining element is formed as a first ring configured to surround a first electrode, and wherein the second confining element is formed as a second ring configured to surround a second electrode that is spaced apart and parallel to the first electrode..." Neither reference includes first and second confining elements that are both formed as rings that surround respective electrodes. *Aruga* is completely silent to confining elements. And while *Imafuku* may disclose a ground electrode 27 and an insulating or conductive gas diffusion discharge guide 47, *Imafuku* does not teach of suggest a guide 47 that surrounds a lower electrode of the susceptor 5. In *Imafuku*, the guide 47 rests on the lower electrode rather than surrounding the lower electrode. *Imafuku* states, " ...a ring like gas diffusion discharge guide 47 at the peripheral portion of the upper surface of the susceptor 5 in place of the focus ring (Col. 11, lines 59-61)." The most that can be said is that the guide 47 surrounds an electrostatic chuck 11. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Imafuku* and *Aruga*, claim 8 specifically requires, "...wherein the first confining element is a ring that surrounds an upper electrode, and the second confining element is a ring that surrounds a bottom electrode, the upper and bottom electrode being arranged for producing an electric field that helps to ignite and sustain a plasma." The rejection is unsupported by the art and should be withdrawn for at least the same reasons as given above (e.g., surround).

In contrast to *Imafuku* and *Aruga*, claim 10 specifically requires, "...wherein the first confining element is a ring that surrounds a bottom electrode, and the second confining element is a ring that surrounds an upper electrode, the upper and bottom electrode being arranged for producing an electric field that helps to ignite and sustain a plasma. The rejection is unsupported by the art and should be withdrawn for at least the same reasons as given above (e.g., surround).

Although the rejections to the dependent claims 4-7, 9, 16-22, 24 and 26 should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art. For example, neither reference teaches or suggests, "...wherein the exposed insulating surface is configured to be level with a top surface of the second electrode..." as required by claim 16, "...wherein the first ring includes an inner ring and an outer ring, wherein the inner ring is formed from a dielectric medium and is configured to be disposed between the first electrode and the outer ring, and wherein the outer ring includes the conductive member of the first ring," as required by claim 18, "...wherein the second ring includes an inner ring and an outer ring, wherein the inner ring is formed from a dielectric medium and is configured to be disposed between the second electrode and the outer ring, and wherein the outer ring includes the conductive portion and the insulating portion," as required by claim 19, "...wherein the first ring and the second ring are configured to extend in a radial direction relative to an axis of the process chamber, and wherein an outer edge of the first ring extends further than an outer edge of the second ring," as required by claim 21 and ... "wherein the exposed conductive member of the first confining element and the exposed insulating portion of the second confining element each include surfaces that ...are perpendicular to the boundary between the process region where a plasma is ignited and sustained for processing a work piece and the regions outside of the process region where the plasma is not desired," as required by claim 26.

Claims 12 and 13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Imafuku* et al. (6,074,518) in view of *Aruga* et al (5,456,757) and further in view of *Takaki* et al (6,279,504B1) or *Nawata* et al (6,444,087B2).

Claims 2-3 and 15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Imafuku* et al. (6,074,518) in view of *Aruga* et al (5,456,757) and further in view of *Lenz* et al. (5,534,751) or Lenz (5,998,932) or Lenz (WO 00/00992).

These claims should be allowed for at least the same reasons as given above with regards to the independent claims. That is, these references do not overcome the deficiencies of the previous references *Imafuku* and *Aruga*. None of these references teach or suggest, "...a second confining element...including an exposed insulating surface, which is configured to at least partially cover a non exposed conductive core that is electrically grounded..." as required by

claim 1, and "...the second confining element including an insulating portion that is exposed within the process chamber, and a conductive portion that is covered by the insulating portion so as to keep the conductive portion from being exposed inside the process chamber, the conductive member being electrically grounded..." as required by claim 23.

OTHER ISSUES UNDER 35 USC 103(a)

Although the present invention is patentable over the prior art for at least the reasons given above, it is the undersigned's belief that the 103 rejections are improper and should be withdrawn. In particular, the Examiner has not met the burden of establishing a prima facie case of obviousness.

1) *Imafuku* teaches away from the claimed invention. As stated in the previous response, The Supreme Court held in U.S. v. Adams that one important indicium of nonobviousness is 'teaching away' from the claimed invention. In short, teaching away is the antithesis of art suggesting that the person of ordinary skill in the art go in the claimed direction. With regards to this issue, *Imafuku* teaches a ground electrode 27 and a conductive guide 47. This goes against what is taught in the present invention, i.e., this combination can adversely effect plasma confinement. As stated in the specification of the present invention on pages 21 and 22, lines 26-7, "Unfortunately, however, the combination of a conductive top surface (e.g., outer side ring) and a conductive bottom surface (e.g., upper ring) can adversely effect plasma confinement. To facilitate discussion, Fig. 7 shows a confinement assembly 300 including a lower ring 208 having a conductive top surface 210 and an upper ring 54 having a conductive bottom surface 88. As shown, there is nearly line-of-sight path between the outer edge of the upper ring 54 and the outer edge of the lower ring 208. The electrons or negative ions 302 may become trapped in the potential well defined by the sheaths formed on the conductive bottom surface 88 of the upper ring 54 and the conductive top surface 210 of the lower ring 208. Similar to the hollow cathode effect, these trapped negative species 302 oscillate back and forth in the potential well. As a result, a glowing discharge can be induced through the collisions of other ions and neutrals (not shown) with the trapped negative species 302. Accordingly, either a combination of a dielectric upper ring and an outer side ring with a conductive surface or a combination of a conductive upper ring and an outer side ring with a dielectric top surface is implemented to improve plasma confinement." Accordingly, a prima facie case of obviousness does not exist and thus the rejection should be withdrawn.

2) There is no basis for combining or modifying references (*Imafuku* and *Aruga*). As mentioned in the previous response, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." With regards to this issue, the Examiner stated that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of *Imafuku* so as to cover the second confining element with an insulator as suggested by *Aruga* et al. because in such a way the conductive portion of the second confining element would not be attacked by the plasma. This is believed to be incorrect in that *Aruga* does not teach or suggest a confining element (as indicated by the Examiner). *Aruga* discloses an electrode and susceptor plate. These elements are not plasma confining elements but rather plasma formation elements. This in of itself shows that there is no motivation to combine. In addition, although reducing plasma attacks is a benefit, there is simply no teaching or suggestion in either reference that one of ordinary skill in the art should add the susceptor of *Aruga* to the guide of *Imafuku* to enhance plasma confinement as required by the claims. As stated in the specification of the present invention on page 17, lines 5-15, "...While not wishing to be bound by theory, it is generally believed that the RF voltage creates a DC potential between the conductive and insulated surfaces during processing. The DC potential guides charged species to either the top insulated surface 70 of the lower ring 53 or to the bottom conductive surface 88 of the upper ring 54. As a result, the exiting particles make at least one collision with the top surface 70 or the bottom surface 88. Upon collision, a current flow is created that essentially removes the charge (via ground) from the charged particle, which as a result tends to neutralize the charge of the particle..." The prior art simply does not provide any impetus to do what the present invention has done and thus the rejection should be withdrawn, i.e., a prima facie case of obviousness does not exist. It should be noted that the Federal Circuit has repeatedly warned against using the applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art.

SUMMARY

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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